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TECHNICAL NOTES

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ALASKA FOREST RESEARCH CENTER

U. S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE

JUNEAU, ALASKA

No. 2

What Kind of Trees Make the Best Growth in Southeast Alaska

The average second-growth stand in Southeast Alaska is composed of approximately equal proportions by volume of Sitka spruce and western hemlock. Spruce increment, according to 4 permanent plots remeasured after 20 years of growth, is far greater than hemlock. Both species increase their rate of growth as they increase in diameter. Mortality occurs chiefly in the smaller diameters. Spruce outstrips hemlock in every vigor class.

Future silvicultural treatment of such stands for the development of sawtimber or veneer stock calls for the selection of high vigor fast growing crop trees, chiefly of spruce.

The pertinent data are shown below:

Table 1.--Twenty-year diameter growth by vigor classes.[1/]

Plots	Age in 1928	Vigor 1		Vigor 2		Vigor 3	
	years	Spruce inches	Hemlock inches	Spruce inches	Hemlock inches	Spruce inches	Hemlock inches
Whitewater Bay	45	3.8	1.9	1.0	1.4	0.5	0.2
Saginaw Bay	60	3.3	1.7	1.4	0.7	0.2	0.2
Kasaan Bay	74	2.6	1.8	0.9	0.7	0.4	0.2
Average		3.2	1.8	1.1	0.9	0.4	0.2

Table 2.--Diameter growth and mortality in 20 years.[2/]

D.B.H.	20-year diameter growth in inches		20-year mortality in percent	
	Spruce	Hemlock	Spruce	Hemlock
0-2	0.2	0.2	98	93
4	0.3	0.2	85	75
6	0.4	0.3	63	49
8	0.8	0.5	33	24
10	1.4	0.9	18	10
12	2.1	1.3	12	7
14	2.8	1.5	8	6
16	3.5	1.7	6	5
18	4.1	1.8	--	--
20	4.6	1.9	--	--

1/ No vigor data for 4th plot. 2/ Average of 4 permanent plots.

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R. M. Godman, Forester

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